1. A method of forming variable resolution image signals in an imager, comprising:

    providing a number of pixels, wherein each of said pixels provide an output signal related to the amount of light illuminating that said pixel during an integration period;

    forming a frame of some or all of said number of pixels;

5   binning one or more groups of said pixels in said frame together so that said frame comprises individual pixels and one or more groups of said pixels, wherein each of said groups of said pixels provides an output signal related to the amount of light illuminating the pixels in that group of pixels during said integration period, thereby providing different resolution for different sections of the imager within said frame; and

10   forming an image signal by reading out said individual pixels and said groups of pixels in said frame.

2. The method of claim 1 wherein said frame is made up of a number of lines, each of said lines comprising individual pixels, groups of pixels binned together, or both

15   individual pixels and groups of said pixels binned together and said frame is read out one line at a time.

3. The method of claim 1 wherein each of said groups of said pixels provides an output signal related to the average amount of light illuminating the pixels in that group of pixels

20   during said integration period.

4. The method of claim 1 further comprising a computer processor, wherein said processor controls which of said pixels are binned together to form groups of said pixels.

5. The method of claim 1 wherein those regions of said frame having higher resolution receive greater illumination than those regions of said frame having lower resolution.

6. The method of claim 1 wherein said image signal represents an image and the resolution for different sections of the imager is chosen based on features of said image.

7. The method of claim 1 wherein said binning one or more groups of said pixels in said frame together is accomplished prior to said integration period.

8. The method of claim 1 wherein feedback of said image signal is used to determine the resolution for different sections of the imager.

9. A method of forming variable resolution image signals in an imager, comprising:

   providing a number of pixels, wherein each of said pixels provide an output signal related to the amount of light illuminating that said pixel during an integration period;

   forming a frame of some or all of said number of pixels;

   binning groups of said pixels in said frame together so that said frame comprises said groups of said pixels binned together, wherein each of said groups of said pixels provides an output signal related to the amount of light illuminating the pixels in that group of pixels during said integration period and the resolution of the imager is determined by the number of pixels binned together into each group; and

forming an image signal by reading out said individual pixels and said groups of

pixels in said frame.

10. The method of claim 9 wherein said frame is made up of a number of lines, each of

5   said lines comprises said groups of said pixels binned together, and said frame is read out

one line at a time.

11. The method of claim 9 wherein each of said groups of said pixels provides an output

signal related to the average amount of light illuminating the pixels in that group of pixels

10   during said integration period.

12. The method of claim 9 further comprising a processor, wherein said processor

controls which of said pixels are binned together to form said groups of said pixels and

thereby controls the resolution of the imager.

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13. The method of claim 9 wherein the resolution of the imager is controlled by an

operator during operation of the imager.

14. The method of claim 9 wherein the number of pixels in each of said groups of said

20   pixels in the same.

15. The method of claim 9 wherein said binning groups of said second number of pixels

in said frame together is accomplished prior to said integration period.

16. The method of claim 9 wherein feedback of said image signal is used to determine the resolution of the imager.

5   17. The method of claim 9 wherein said image signal represents an image and the size of said groups of pixels binned together is chosen based on features of said image.

18. A variable resolution imager, comprising:

a number of pixels, wherein each of said pixels provide an output signal related to

10   the amount of light illuminating that said pixel during an integration period;

a frame of some or all of said number of pixels wherein;

one or more groups of said pixels in said frame binned together so that said frame comprises individual pixels and one or more groups of said pixels, wherein each of said groups of said pixels provides an output signal related to the amount of light illuminating

15   the pixels in that group of pixels during said integration period, thereby providing different resolution for different sections of the imager within said frame; and

an image signal formed by reading out said individual pixels and said groups of pixels in said frame.

20   19. The variable resolution imager of claim 18 wherein said frame is made up of a number of lines, each of said lines comprises individual pixels, groups of pixels binned together, or both individual pixels and groups of said pixels binned together and said frame is read out one line at a time.

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20. The variable resolution imager of claim 18 wherein each of said groups of said pixels provides an output signal related to the average amount of light illuminating the pixels in that group of pixels during said integration period .

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21. The variable resolution imager of claim 18 further comprising a processor, wherein said processor controls which of said pixels are binned together to form groups of said pixels.

10   22. The variable resolution imager of claim 18 wherein those regions of said frame having higher resolution receive greater illumination than those regions of said frame having lower resolution.

23. The method of claim 18 wherein said image signal represents an image and the

15   resolution for different sections of the imager is chosen based on features of said image.

24. The variable resolution imager of claim 18 wherein said binning one or more groups of said pixels in said frame together is accomplished prior to said integration period.

20   25. The variable resolution imager of claim 18 wherein feedback of said image signal is used to determine the resolution for different sections of the imager within said frame.

26. A variable resolution imager, comprising:

a number of pixels, wherein each of said pixels provide an output signal related to the amount of light illuminating that said pixel during an integration period;

a frame of some or all of said number of pixels;

5   groups of said pixels in said frame binned together so that said frame comprises said groups of said pixels binned together, wherein each of said groups of said pixels provides an output signal related to the amount of light illuminating the pixels in that group of pixels during said integration period and the resolution of the imager is determined by the number of pixels binned together into each group; and

10   an image signal formed by reading out said individual pixels and said groups of pixels in said frame.

27. The variable resolution imager of claim 26 wherein said frame is made up of a number of lines, each of said lines comprises said groups of said pixels binned together,

15   and said frame is read out one line at a time.

28. The variable resolution imager of claim 26 wherein each of said groups of said pixels provides an output signal related to the average amount of light illuminating the pixels in that group of pixels during said integration period   .

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29. The variable resolution imager of claim 26 further comprising a processor, wherein said processor controls which of said pixels are binned together to form said groups of said pixels and thereby controls the resolution of the imager.

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30. The variable resolution imager of claim 26 wherein the resolution of the imager is controlled by an operator during operation of the imager.

5   31. The variable resolution imager of claim 26 wherein the number of pixels in each of said groups of said pixels in the same.

32. The variable resolution imager of claim 26 wherein said binning groups of said second number of pixels in said frame together is accomplished prior to said integration

10   period.

33. The variable resolution imager of claim 26 wherein feedback of said image signal is used to determine the resolution of the imager.

15   34. The method of claim 26 wherein said image signal represents an image and the size of said groups of pixels binned together is chosen based on features of said image.